

Commissioning the CMS pixel detector with cosmic rays

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Please give a brief summary of your poster

The new energy frontier that is going to be attained by the LHC machine requires the experiments to gather as much information as possible from each collision. To achieve such a challenging goal in the innermost, radiation hostile region, the high-precision and low-background tracking of the CMS experiment is based on the pixel detector. After almost 10 years of design and construction the CMS pixel detector has been installed and commissioned. The pixel detector consists of 66M pixels of $100 \times 150 \mu\text{m}^2$ area, and is designed to exploit the shape of the actual charge sharing among adjacent pixels to gain hit resolution down to $12 \mu\text{m}$. Results from cosmic ray studies with the CMS pixel detector will be presented, including the current status in calibration, alignment, data quality monitoring and track reconstruction. Implication on physics performance will also be discussed.

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